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ABSTRACT

This study was conducted to explore the characteristics of and interrelationships between teacher efficacy and professional learning community in 19 schools participating in the Quest project at AEL, Inc. The Quest project is an applied regional research project that assists schools with educational reform efforts. The School Professional Staff as Learning Community instrument developed by S. Hoard (1997) and an AEL-developed Teaching Questionnaire containing 2 scales (perceptions of external and internal efficacy) based on work by T. Guskey were administered to staff in the 19 schools, with 624 responses received. Based on the Cronbach alpha reliability estimates, it was concluded that all three scales had satisfactory reliability. Elementary school teachers had a higher level of internal efficacy and a higher sense of a professional learning community at their schools than did the high school teachers. High school teachers had a higher level of perceived external efficacy regarding learning than did the elementary school teachers. The results support the 1994 finding of T. Guskey and P. Passaro that the external and internal scales measure two separate constructs of teacher efficacy that have an inverse relationship. Internal and external measures of teacher efficacy were not significantly related to perceptions of the school as a learning community. Teachers' years of experience had no bearing on their perceptions of internal or external efficacy or their perceptions of the school as a learning community. Implications for the design or implementation of Quest programs are discussed. (Contains 4 figures, 6 tables, and 12 references.) (SLD)

ASSESSING TEACHER EFFICACY AND PROFESSIONAL LEARNING COMMUNITY IN 19 ELEMENTARY AND HIGH SCHOOLS

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INTRODUCTION

According to Rosenholtz (as cited in Hord, 1997), teachers who feel supported in their own ongoing learning and classroom practice are more committed and effective than those who do not. This support (including teacher networks, cooperation among colleagues, and expanded professional roles) can increase teacher efficacy for meeting students' needs. And, teachers with a strong sense of their own efficacy are more likely to adopt new classroom behaviors and stay in the profession.

Background of Study

This paper is based on a report (Cowley, 1999) of the administration of two instruments to the faculties of 19 schools involved in the Quest project at AEL, Inc. This regional applied research project assists schools with educational reform efforts. Quest is an inquiry-based journey of systemic transformation designed to challenge norms embedded in the culture of traditional schools (AEL, 1995). The two goals of Quest are to produce a framework and process that will enable members of school communities to embark on a journey for continuous improvement and create a network of individuals and agencies to sustain and support them on their journey (Meehan, Orletsky, & Sattes, 1997).

As part of their applied research into schools undergoing a journey of continuous school improvement, Quest staff were interested in investigating several constructs including teacher efficacy, professional learning community, and organizational or collective efficacy. As a result, they decided to encourage Quest school faculties to administer two instruments—Hord's "School Professional Staff as Learning Community" and an AEL-developed "Teaching Questionnaire" based on Guskey's internal and external teacher efficacy items.

The goal of the study was to explore the characteristics of and interrelationships between the teacher efficacy and professional learning community instruments for the 19 Quest schools. Thus, the study was seen as both an effort to learn more about the two instruments and to learn of their interrelationships. The objectives were to provide descriptive information for the two instruments, assess the internal reliabilities of the scales, and determine the level of correlation among the scales.

Professional Learning Community

Astuto (in Hord, 1997) defined a "professional community of learners" as a place in which the teachers and administrators of a school continuously seek and share learning, and act on that learning. MacMullen (in Hord, 1997) concluded that the inclusion of the whole faculty is a significant requirement for impact. And, Fuller (in Hord, 1997) emphasized that individuals provide the most effective route for accomplishing systemic change.

According to Hord (1997), results of a professional learning community include:

- reduction of isolation of teachers;
- increased commitment to the mission and goals of the school and increased vigor in working to strengthen the mission;
- shared responsibility for the total development of students and collective responsibility for students' success;
- powerful learning that defines good teaching and classroom practice, that creates new knowledge and beliefs about teaching and learners;
- increased meaning and understanding of the content that teachers teach and the roles that they play in helping all students achieve expectations;
- higher likelihood that teachers will be well informed, professionally renewed, and inspired to inspire students;
- more satisfaction and higher morale, and lower rates of absenteeism;
- significant advances into making teacher adaptations for students, and changes for learners made more quickly than in traditional schools;
- commitment to making significant and lasting changes; and
- higher likelihood of undertaking fundamental, systemic change (p. 29).

For students, results include:

- decreased dropout rate and fewer classes "cut";
- lower rates of absenteeism;
- increased learning that is distributed more equitably in the smaller high schools;
- larger academic gains in math, science, history, and reading than in traditional schools; and
- smaller achievement gaps between students from different backgrounds (p. 30).

The Hord instrument (1997) measures five major attributes of a professional learning community, which include:

- the collegial and facilitative participation of the principal who shares leadership—and thus, power and authority—through inviting staff input in decision making;
- a shared vision that is developed from an unswerving commitment on the part of staff to students' learning and that is consistently articulated and referenced for the staff's work;
- collective learning among staff and application of the learning to solutions that address students' needs;
- the visitation and review of each teacher's classroom behavior by peers as a feedback and assistance activity to support individual and community improvement; and
- physical conditions and human capacities that support such an operation (pp. 18-19).

Teacher Efficacy

Teacher efficacy is defined by Guskey and Passaro (1994, p. 628) as "teachers' belief or conviction that they can influence how well students learn, even those who may be considered difficult or unmotivated." Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) define it as "the teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context" (p. 233).

According to Armor (as cited in Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998), the first measure of teacher efficacy included two items grounded in Rotter's social learning theory that were added to a Rand Questionnaire. Gibson and Dembo then created a 30-item teacher efficacy scale, which was later modified in Woolfolk and Hoy's 22-item scale (Guskey, 1998).

Guskey and Passaro (1994) identified an anomaly in the items on the two scales of the Woolfolk and Hoy instrument—personal efficacy items were positive and used the referent "I," while teaching efficacy items were negative and used the referent "teachers." The instrument was revised accordingly (balancing item characteristics) and administered to a sample of 342 teachers. Instead of the dimensions of personal and general teaching efficacy, they found a difference that "was more an internal versus external distinction" (Guskey, 1998). Internal efficacy measures the extent to which teachers believe they can/do have personal influence, power, and impact on students' learning; external efficacy measures teachers' perceptions of the influence, power, and impact of factors outside the classroom and beyond their immediate/direct control.

Guskey (1998) claims that the internal/external classification is not the same as Rotter's "locus of control" measures. Instead of factors representing opposite ends of a bipolar scale, the two factors are distinct and operate fairly independently. Guskey and Passaro (1994) note that due to structure of the scales, the internal factor reflects a positive and optimistic perspective, while the external factor tends to emphasize negative impact.

METHODOLOGY

This section provides descriptions of the two instruments used in the exploratory study, the methods utilized in data collection, and the resulting statistical analyses conducted.

Hord Instrument

The "School Professional Staff as Learning Community" survey is a three-page instrument assessing the extent to which teachers believe their school is a positive learning environment and is supportive as a learning community. Originally developed by Shirley Hord, the survey consists of five main descriptors: shared leadership, shared visions, collective creativity, peer review, and supportive conditions/capacities. Each descriptor contains a number of sub-items with individual Likert-type response scales of 5 (high) to 1 (low). These scales have anchor statements at both end-points and at the mid-point to differentiate the high, middle, and low points on the scale.

The field test of Hord's instrument (Meehan, Orletsky, & Sattes, 1997) determined that it actually measured one overall construct, rather than five distinct constructs. Therefore, the individual items were combined into one total scale, which is how the data are presented. The higher the total scale score, the more positively the school is viewed as a learning community.

Guskey Instrument

The AEL "Teaching Questionnaire" survey was adapted from Guskey and Passaro's (1994) teacher efficacy items, which measure the extent of internal and external teacher efficacy. Guskey's version of the survey contained 21 items (11 external and 10 internal). In the AEL version, the 11th external item (with the lowest factor loading) was eliminated and a demographic page was added. The three-page survey consists of 20 items (10 external and 10 internal) with corresponding Likert-type response options of Strongly Agree (SA), Mostly Agree (MA), Agree Slightly (A), Disagree Slightly (D), Mostly Disagree (MD), and Strongly Disagree (SD). The demographic page asks respondents for various types of information (respondent's grade taught, role, full or part time, years taught at school, total years experience, education level, gender, and age; and school setting, school enrollment, and grade level).

This instrument measures both internal and external teacher efficacy. Individual items were combined into either of these two scales (depending on their focus), which is how the data are presented. The higher the score in either category, the more the teachers believe that those particular factors influence learning.

Data Collection Methods

Staff of the 19 Quest schools were introduced to the two surveys during the Quest Inquiry into Improvement conference in November 1997. These schools consisted of ten elementary and nine high schools in AEL's four-state region (Kentucky, Tennessee, Virginia, and West Virginia). In December 1997, the survey packets were sent via first-class mail to a contact person at each school, who was responsible for distributing the materials to faculty members, collecting the completed surveys from staff, and returning the surveys to AEL. AEL received all the completed instruments by March 1998. Thus, AEL staff were not in charge of the actual administration and collection of the instruments.

A total of 1,040 copies of each survey were mailed, including ten extra copies of each survey per school. Of the 850 surveys (1,040 minus the 190 extra) expected to be completed, 624 instruments were returned in a usable form, for a return rate of approximately 75 percent. No follow-up contacts were made to nonrespondents and their characteristics are unknown. Essentially, this was a population study, not a random sample.

Once completed surveys were received at AEL, staff created SPSS databases for each survey and support staff entered all data. An AEL consultant merged individual school files for each survey, combined the two separate databases into one, and conducted preliminary analyses.

Statistical Analyses

AEL staff performed additional analyses that formed the foundation for the exploratory report of teacher efficacy and professional learning community in Quest schools. These analyses were all based on three scales (the internal and external teacher efficacy scales and one professional learning community scale), not at the individual item level. Staff generated descriptive statistics for the full group and by various subsets for each of the three scales. Cronbach's Alpha internal consistency reliability estimates were computed for the full group and by grade level to determine the degree to which the items were measuring the same construct. Pearson correlation coefficients were computed for the three scales by the full group and various subsets. In addition, actual years of teaching experience and years in the current school were correlated to the three scales.

FINDINGS

This section presents the findings from administering the Guskey and Hord instruments to Quest school faculties. These findings are presented in both tabular and narrative format at the scale level (External and Internal Guskey and Total Hord), individual item analyses are not reported. For a visual portrayal of overall findings, see the four figures in the Appendix.

Descriptive Statistics

Table 1 displays the descriptive statistics for the three scales by the full group of respondents, the elementary school group, and the high school group (number, minimum score, maximum score, mean, and standard deviation). For the full group, scale responses ranged from 560 for the Total Hord to 595 for the External Guskey. With a possible range of 10-60 points, the External Guskey scale had a minimum obtained score of 14, while the Internal Guskey was 22. The External Guskey maximum obtained score was 54, while the Internal Guskey was 60. The External Guskey mean was 34.34, with a standard deviation of 7.12; the Internal Guskey mean was higher at 41.92, with a smaller standard deviation of 5.78. With a possible range of 17-85, the Total Hord scale had the minimum obtainable score of 17 and the maximum of 85, with a mean of 59.02 and a standard deviation of 13.11.

For the External Guskey scale, the elementary group had the same minimum score as the full group (14), while the high school's was higher at 19. Both the elementary and high school groups matched the full group's maximum score of 54. The elementary mean was lower than the full group at 31.81 (standard deviation of 7.00), while the high school's was higher at 35.48 (standard deviation of 6.88). For the Internal Guskey scale, the elementary group had a higher minimum score of 31, while the high school equaled the full group (22). The elementary maximum score matched the full group's score of 60, while the high school's was 58. The elementary mean was higher than the full group's at 44.33 (standard deviation of 5.24), while the high school's was slightly lower at 40.85 (standard deviation of 5.69). For the Total Hord scale, the elementary group had a higher minimum obtained score of 28, while the high school group equaled the full group's 17. Both the elementary and high school groups matched the full group's maximum score of 85. And, the elementary mean of 63.87 (standard deviation of 12.53) was higher than the full group's, while the high school mean was lower at 56.77 (standard deviation of 12.88).

Table 2 provides the same descriptive information for the three scales for each of the ten elementary schools. For the External Guskey scale, the number of respondents from each school ranged from 9 to 28. With a possible range of 10-60 points, the lowest minimum score received was 14 (School #6); the highest was 27 (School #7). School #7 received the highest maximum score of 54; the lowest maximum score was 37 (School #4). School #4 had the lowest mean at 29.46 (the only mean in the 20s); School #7 had the highest mean at 35.56. Standard deviations ranged from 5.22 (School #4) to 8.41 (School #7).

Table 1

Descriptive Statistics for the Guskey and Hord Scales by the
Full Group, Elementary School Group, and High School Group

Scale	Number	Minimum Score	Maximum Score	Mean	Standard Deviation
Full Group					
External Guskey (10 items; range of 10-60 points)	595	14	54	34.34	7.12
Internal Guskey (10 items; range of 10-60 points)	590	22	60	41.92	5.78
Total Hord (17 items; range of 17-85 points)	560	17	85	59.02	13.11
Elementary School Group					
External Guskey (10 items; range of 10-60 points)	185	14	54	31.81	7.00
Internal Guskey (10 items; range of 10-60 points)	181	31	60	44.33	5.24
Total Hord (17 items; range of 17-85 points)	172	28	85	63.87	12.53
High School Group					
External Guskey (10 items; range of 10-60 points)	410	19	54	35.48	6.88
Internal Guskey (10 items; range of 10-60 points)	409	22	58	40.85	5.69
Total Hord (17 items; range of 17-85 points)	377	17	85	56.77	12.88

Table 2

Descriptive Statistics for the Guskey and Hord Scales by Elementary Schools

School Number	Number	Minimum Score	Maximum Score	Mean	Standard Deviation
External Guskey Scale (range of 10-60 points)					
School #1	19	20	47	33.95	7.80
School #2	14	25	44	33.57	5.53
School #3	26	22	47	31.85	6.44
School #4	13	17	37	29.46	5.22
School #5	28	15	52	30.14	7.30
School #6	24	14	45	31.25	7.31
School #7	9	27	54	35.56	8.41
School #8	14	22	38	30.14	5.52
School #9	25	18	50	33.08	7.72
School #10	13	20	42	30.46	6.97
Internal Guskey Scale (range of 10-60 points)					
School #1	19	35	49	42.53	3.73
School #2	13	35	52	43.08	5.19
School #3	25	37	60	45.16	5.27
School #4	13	35	54	44.54	4.96
School #5	27	39	55	46.74	4.45
School #6	23	35	54	44.26	5.76
School #7	10	36	52	44.10	4.53
School #8	13	31	55	44.15	6.40
School #9	25	33	55	42.68	5.65
School #10	13	34	53	45.08	5.68
Total Hord Scale (range of 17-85 points)					
School #1	18	63	79	72.72	4.74
School #2	12	57	84	71.00	9.34
School #3	25	40	76	56.48	9.82
School #4	13	44	75	58.92	8.74
School #5	25	45	85	71.24	11.30
School #6	22	28	77	62.77	12.41
School #7	10	63	79	72.30	6.38
School #8	14	34	65	49.43	10.57
School #9	22	37	82	65.00	12.18
School #10	11	29	85	58.09	13.95

For the Internal Guskey scale, the number of respondents from each school ranged from 10 to 27. Again with a possible range of 10-60 points, School #8 had the lowest minimum score of 31; School #5 had the highest minimum (39). School #3 received the highest possible maximum score of 60, while School #1 received the lowest maximum score of 49. Means ranged from 42.53 (School #1) to 46.74 (School #5), while standard deviations ranged from 3.73 (School #1) to 6.40 (School #8).

Also shown in Table 2 is the Total Hord scale (possible range of 17-85 points). The number of respondents from each school ranged from 10 to 25. School #6 had the lowest minimum score of 28, while two schools (#1 and #7) tied for the highest minimum of 63. Two schools (#5 and #10) received the maximum obtainable score of 85, while School #8 received the lowest maximum of 65 (the only score in the 60s). There was a large difference of 23.29 between the highest mean of 72.72 (School #1) and the lowest at 49.43 (School #8). Three other schools had means in the 70s, two in the 60s, and three in the 50s. Standard deviations also varied widely, with School #1 at 4.74 and School #10 at 13.95.

Table 3 provides descriptive statistics for the three scales for each of the nine high schools. School #5 was an anomaly in that it had about 100 more respondents than any of the other high schools in the study. For the External Guskey scale, the other eight schools' respondents ranged from 17 to 52. Again with a possible range of 10-60 points, the lowest minimum score was 19 (School #5), while two schools (#4 and #9) tied with the highest minimum of 25. Maximum scores ranged from 37 (School #8) to 54 (School #4). School #8 had the lowest mean of 31.29; School #1 had the highest at 37.62. Standard deviations ranged from 4.18 (School #8) to 7.56 (School #9).

For the Internal Guskey scale, the number of respondents from each school ranged from 15 to 53 (again, School #5 had about 100 more respondents than the other schools). Minimum scores on the 10-60 scale ranged from 22 (School #5) to 36 (School #6); maximum scores were 50 (School #8) to 58 (School #6). School #1 had the lowest mean of 39.20, School #6 had the highest at 43.31. Standard deviations ranged from 4.02 (School #3) to 6.60 (School #1).

School #5 also had about 100 more respondents for the Total Hord scale. The other eight high schools had from 15 to 46 respondents. With a possible range of 17-85 points, School #5 had the lowest minimum score of 17 and School #4 had the highest minimum of 51. The lowest maximum score was 73 (School #2), with two schools (#1 and #7) receiving the highest possible score of 85. These high school means were not as dispersed as the elementary means, ranging only from 54.50 (School #5) to 65.21 (School #6), a 10.71 difference compared to the elementary difference of 23.29. And, the standard deviations were not quite as varied either, ranging from 7.93 (School #2) to 13.91 (School #5).

Table 3

Descriptive Statistics for the Guskey and Hord Scales by High Schools

School Number	Number	Minimum Score	Maximum Score	Mean	Standard Deviation
External Guskey Scale (range of 10-60 points)					
School #1	45	20	48	37.62	7.40
School #2	34	21	47	35.26	6.61
School #3	25	23	48	37.24	5.40
School #4	26	25	54	36.92	5.80
School #5	153	19	51	34.99	7.15
School #6	25	21	45	32.96	5.38
School #7	52	21	51	35.15	6.99
School #8	17	24	37	31.29	4.18
School #9	30	25	53	37.37	7.56
Internal Guskey Scale (range of 10-60 points)					
School #1	44	23	54	39.20	6.60
School #2	34	35	55	43.29	5.14
School #3	25	35	51	41.56	4.02
School #4	25	24	53	40.12	5.61
School #5	156	22	54	40.63	5.97
School #6	26	36	58	43.31	5.70
School #7	53	32	56	40.17	5.08
School #8	15	34	50	42.07	4.40
School #9	31	30	55	40.10	5.15
Total Hord Scale (range of 17-85 points)					
School #1	37	24	85	56.68	12.52
School #2	28	42	73	55.14	7.93
School #3	26	29	74	59.92	10.53
School #4	25	51	80	63.76	10.20
School #5	150	17	84	54.50	13.91
School #6	24	37	83	65.21	11.41
School #7	46	31	85	56.85	12.97
School #8	15	40	80	55.27	10.17
School #9	26	33	81	54.77	13.76

Internal Consistency Reliabilities

Table 4 displays the Cronbach Alpha internal consistency reliabilities for the External and Internal Guskey and Total Hord scales for each of the 19 schools. The school number, number of respondents, and reliability scores are presented for each scale. For the External Guskey scale, reliabilities ranged from a low .3044 (High School #8) to .8445 (Elementary School #1). Of the remaining schools, one was in the .40s, three each were in the .50s and .60s, nine were in the .70s, and one more was in the .80s. More than half of the schools (11) scored at least in the .70s. Of the eight below that level, three were elementary and five were high schools.

The Internal Guskey scale reliabilities were not quite as dispersed as the External scores. The lowest was .5240 (High School #3), the highest was .8332 (Elementary School #10); of the remaining schools, three were in the .60s, 11 were in the .70s, and three more were in the .80s. All but four of the schools (two elementary and two high) scored at least in the .70s.

The reliability scores were much higher for the Total Hord scale. Elementary School #1 had the lowest score of .7456, High School #9 had the highest at .9573. Of the other 17 schools, three were in the .80s (two elementary and one high) and the remaining 14 were in the .90s.

Overall, the reliabilities were fairly high. For the full group, the External Guskey scale reliability was .75, the Internal Guskey scale was .78, and the Total Hord scale was .95.

Correlations

Table 5 displays the correlations among the External Guskey, Internal Guskey, and Total Hord scales by the full group of respondents and by three demographic variables (gender, grade level, and categorized years of experience).^{*} For the External and Internal Guskey scales, there were eight low negative correlations ranging from -.300 to -.435. These eight correlations included the full group, females, elementary school, and five of the six years of experience categories (all except the 21 to 25 category). The remaining three correlations were very low negative ones: -.242 for males, -.249 for high school, and -.231 for 21 to 25 years. All 11 correlations were significant, but this may be due to the large sizes of the groups. Of more importance is the direction (all negative) and magnitude of these correlations (none above -.435).

^{*}The "rule of thumb" for interpreting correlation coefficient sizes was taken from *Applied Statistics for the Behavioral Sciences* (Hinkle, Wiersma, & Jurs, 1998) and is included here for the reader's convenience:

.90 to 1.00 (-.90 to -1.00)	Very high positive (negative) correlation
.70 to .90 (-.70 to -.90)	High positive (negative) correlation
.50 to .70 (-.50 to -.70)	Moderate positive (negative) correlation
.30 to .50 (-.30 to -.50)	Low positive (negative) correlation
.00 to .30 (.00 to -.30)	Very low positive (negative) correlation [changed from "Little if any correlation"]

Table 4

Cronbach's Alpha Reliabilities for the Guskey and Hord Scales by Individual Schools

School Number	Guskey External		Guskey Internal		Total Hord	
	N	Alpha	N	Alpha	N	Alpha
Elementary Schools						
Elem. #1	19	.8445	19	.6782	18	.7456
Elem. #2	14	.6123	13	.7760	12	.9387
Elem. #3	26	.7005	25	.7910	25	.9048
Elem. #4	13	.4560	13	.7041	13	.8209
Elem. #5	28	.7955	27	.7312	25	.9510
Elem. #6	24	.7383	23	.7500	22	.9538
Elem. #7	9	.8438	10	.6538	10	.8509
Elem. #8	14	.5170	13	.8139	14	.9243
Elem. #9	25	.7949	25	.7019	22	.9492
Elem. #10	13	.7884	13	.8332	11	.9366
High Schools						
High #1	45	.7719	44	.8025	37	.9248
High #2	34	.6829	34	.7220	28	.8583
High #3	25	.5702	25	.5240	26	.9184
High #4	26	.6428	25	.7734	25	.9242
High #5	156	.7507	156	.7607	150	.9548
High #6	25	.5515	26	.8120	24	.9343
High #7	52	.7878	53	.7486	46	.9427
High #8	17	.3044	15	.6720	15	.9067
High #9	30	.7797	31	.7071	26	.9573

Table 5

Correlations Among the Guskey and Hord Scales
by Full Group, Gender, Grade Level, and Years Experience

Group	Guskey External and Guskey Internal		Guskey Internal and Total Hord		Guskey External and Total Hord	
	N	Corr.	N	Corr.	N	Corr.
Full Group	580	-.319****	530	.050	535	-.015
Gender: Females	401	-.327****	366	.039	370	.026
Gender: Males	174	-.242***	159	.002	160	-.021
Grade Level: Elem.	180	-.323****	166	-.123	169	.165*
Grade Level: High	400	-.249****	364	.017	366	-.001
Years Exp: Up to 5	83	-.300**	76	.082	74	-.088
Years Exp: 6 to 10	88	-.435****	79	-.116	80	.129
Years Exp: 11 to 15	90	-.414****	82	.023	83	-.015
Years Exp: 16 to 20	107	-.308***	100	.102	99	-.053
Years Exp: 21 to 25	81	-.231*	73	.128	75	-.113
Years Exp: 25+	120	-.305***	109	.029	112	.064

*Significant at .05.

**Significant at .01.

***Significant at .001.

****Significant at .0001.

For the Internal Guskey and Total Hord scales, there were nine very low positive correlations and two very low negative correlations (elementary school at $-.123$ and 6 to 10 years experience at $-.116$). None of these correlations were significant. For the External Guskey and Total Hord scales, there were seven very low negative correlations, ranging from $-.001$ to $-.113$, and four very low positive correlations, ranging from $.026$ to $.165$. Only one correlation (elementary school) was significant, at the .05 level, and again, this may be attributed to the group size.

Table 5 also shows the vast difference between the correlations of the two Guskey scales (External and Internal), when compared with correlations of each of these with the Total Hord scale. As shown in the first column, all 11 correlations are both negative and significant; the remaining two columns contain far fewer negative correlations, and only one other significant correlation.

Finally, the number of years of experience as supplied by respondents was correlated to the three scales, although this is not shown in table format. All three scales had very low correlations to years of experience: the External Guskey was $.071$, the Internal Guskey was $.059$, and the Total Hord was $-.063$. In addition, the number of years in the current school as supplied by respondents was correlated to the three scales. Again, all three scales had very low correlations to number of years in the current school: the External Guskey was $.079$, the Internal Guskey was $.006$, and the Total Hord was $-.114$. Interestingly, the Total Hord scale coefficients were negatively correlated to both the number of years of experience and the number of years in the current school.

Table 6 displays the correlations among the External Guskey, Internal Guskey, and Total Hord scales by the 19 participating schools. For the External and Internal Guskey scales, Elementary School #7 had a high negative correlation of $-.776$, significant at the .05 level. Elementary School #8 had a moderate negative correlation ($-.673$), again significant at .05. Six schools (Elementary #1, Elementary #2, Elementary #4, Elementary #9, High #3, and High #7) had low negative correlations, ranging from $-.337$ to $-.474$; High School #7 was significant at .01, Elementary #9 at .05. Nine of the remaining schools had very low negative correlations. Of these, High School #5 (at $-.285$) was significant at .0001, but this may be due to the group size. High School #2 was the only school with a positive correlation, albeit a very low $.062$. And, Elementary School #6 had no correlation.

For the Internal Guskey and Total Hord scales, Elementary Schools #3, #7, #9, and #10 had low negative correlations ($-.362$, $-.343$, $-.394$, and $-.396$), none of which were significant. Of the remaining 15 schools, six had very low negative correlations and nine had very low positive correlations—again, none were significant. For the External Guskey and Total Hord scales, Elementary School #3 had a moderate positive correlation ($.527$), significant at .01. Elementary School #6 had a low positive nonsignificant correlation of $.402$. Of the remaining 17 schools, eight had very low negative correlations and nine had very low positive correlations—none significant.

Overall, Table 6 shows tremendous variation in correlation coefficients among the 19 schools. For example, on the Guskey External and Internal scales, the correlations ranged from $-.776$ (Elementary #7) to $.062$ (High #2). For the Guskey Internal and Total Hord scales, the correlations ranged from $-.396$ (Elementary #10) to $.278$ (Elementary #5). On the Guskey External and Total Hord scales, they ranged from $-.299$ (High #1) to $.527$ (Elementary #3).

Table 6

Correlations Among the Guskey and Hord Scales by Individual Schools

School Number	Guskey External and Guskey Internal		Guskey Internal and Total Hord		Guskey External and Total Hord	
	N	Corr.	N	Corr.	N	Corr.
Elementary Schools						
Elem. #1	19	-.337	18	-.101	18	-.286
Elem. #2	13	-.396	12	.176	12	-.202
Elem. #3	25	-.265	22	-.362	23	.527**
Elem. #4	13	-.474	13	-.216	13	.211
Elem. #5	27	-.156	24	.278	25	.082
Elem. #6	23	.000	21	-.059	22	.402
Elem. #7	9	-.776*	10	-.343	9	-.208
Elem. #8	13	-.673*	13	.039	14	-.138
Elem. #9	25	-.405*	22	-.394	22	.107
Elem. #10	13	-.165	11	-.396	11	-.011
High Schools						
High #1	44	-.228	36	.032	37	-.299
High #2	34	.062	28	.097	28	.040
High #3	24	-.350	24	.116	24	-.152
High #4	25	-.074	24	-.264	25	.203
High #5	151	-.285****	144	.031	145	.075
High #6	25	-.014	24	.062	23	.104
High #7	52	-.363**	45	.074	44	-.201
High #8	15	-.194	13	-.137	15	.009
High #9	30	-.249	26	-.241	25	.092

*Significant at .05.

**Significant at .01.

***Significant at .001.

****Significant at .0001.

CONCLUSIONS AND RECOMMENDATIONS

This section provides conclusions drawn from the findings of the study and recommendations based on those conclusions.

Conclusions

Based on the Cronbach Alpha reliability estimates, it can be concluded that all three scales have satisfactory reliability.

Elementary teachers had a higher level of internal efficacy and a higher sense of a professional learning community in their schools than did the high school teachers. Conversely, high school teachers had a higher level of perceived external efficacy regarding learning than the elementary teachers.

The amount of variation among teachers' views on external and internal efficacy and professional learning communities seems to be fairly consistent both within and across schools.

The results confirm Guskey and Passaro's (1994) finding that the external and internal scales measure two separate constructs of teacher efficacy; in addition, findings show an inverse relationship so that as measures in internal efficacy increase, measures in external efficacy tend to decrease and vice versa.

Internal and external measures of teacher efficacy are not significantly related to perceptions of the school as a learning community.

Teachers' years of experience, either total or at the current school, has no bearing on their perceptions of internal or external efficacy nor on their perceptions of their school as a learning community.

Given the low correlation between professional learning community and teacher efficacy scores, it may be useful to measure an overall organizational or collective efficacy construct.

Recommendations

Project staff can review the descriptive statistics and use this information as input to further work and collaboration with Quest schools. Staff also may want to share this information with involved schools, as appropriate.

Quest staff might consider administering the two instruments again toward the end of the project to measure participants' change over time.

Since this study showed virtually no correlation between teachers' years of experience (total or at current building) with either the efficacy or professional learning community constructs, Quest staff need not take those variables into consideration when designing or conducting teacher activities. As well, staff could disregard years of experience as a selection criterion for involvement in the network.

Researchers interested in this area may want to investigate the construct of overall organizational or collective efficacy and report their findings to the research community. One method of studying collective efficacy may be through the use of instruments such as the one developed by Mott (1972), which measures a school's overall effectiveness, or Goddard (1999), which measures collective teacher efficacy. A discussion of this construct follows.

Discussion of Organizational/Collective Efficacy

Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) propose an integrated model of teacher efficacy, which weaves together the two conceptual strands of internal/external and personal/general teaching efficacy and suggests new areas of research. In their model, both analysis of teaching task and assessment of personal teaching competence are separate from, and contribute to, teacher efficacy and the resulting consequences. They note, "By conceptualizing teacher efficacy in terms of the confluence of judgments about personal teaching competence and the teaching task, both competence and contingency . . . are considered in an explanation of resultant teacher efficacy" (p. 233). They claim most existing measures of teacher efficacy do not include both dimensions and that "Studies need to test the relative predictive power of (a) assessments of personal competence and (b) the analysis of the task" (p. 240). And, the authors note the importance of the social context of the school—while self-efficacy has been measured, scant attention has been given to "collective efficacy."

Guskey (1998) points out that, even though significant progress has been made in the area of teacher efficacy, other factors have yet to be identified that may be equally powerful and important. For example, he noted that efficacy can be measured either globally or specifically and by a single student or a group of students, the negative construction of external factor items, and the unknown influence of unidentified organizational variables. Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) likewise note that organizational variables are likely influenced by self and collective efficacy.

In her study of teacher efficacy, Hipp (1996) found results suggesting that "though group purpose may affect staff individually, . . . its strength lies in the impact on the group as a whole—what teachers can do together to succeed" (p. 26). And, her findings implied "that constraints perceived within the power of the principal appeared to have a more negative effect on teacher efficacy than non-school constraints" (p. 27).

Miskel, McDonald, and Bloom (1983) note the common assumption that "organizational effectiveness is a multidimensional concept" and that "virtually every phase, process, or outcome variable can be and has been used as an indicator of effectiveness" (p. 55). According to them, "*Perceived organizational effectiveness* is the subjective evaluation of a school's productivity, adaptability, and flexibility" (p. 55). They found, for instance, that effective schools produce more/better products and services and are more flexible and adaptable than less effective schools. Ultimately, they found that "the structure of schools may appear to be linked loosely to the criteria of organizational effectiveness, but school outcomes may be, and certainly perceptions of effectiveness are, tied to the structure through cultural and social orientations" (p. 77).

Finally, Bandura (1982) claims "The strength of groups, organizations, and even nations lies partly in people's sense of collective efficacy that they can solve their problems and improve their lives through concerted effort. Perceived collective efficacy will influence what people choose to do as a group, how much effort they put into it, and their staying power when group efforts fail to produce results" (p. 143). Bandura also reiterates that knowledge of personal efficacy is related to perceived group efficacy—that "collective efficacy is rooted in self-efficacy" (p. 143). He notes the need for advancing this field of study by developing tools to gauge groups' perceptions of efficacy to achieve results. "Greatest progress will be made in elucidating the development, decline, and restoration of collective efficacy and how it affects group functioning, if measures of perceived group efficacy are tied closely to explicit indices of group performance," he contends (p. 144).

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APPENDIX

Figure 1: Means and Standard Deviations of Scales by Grade Level

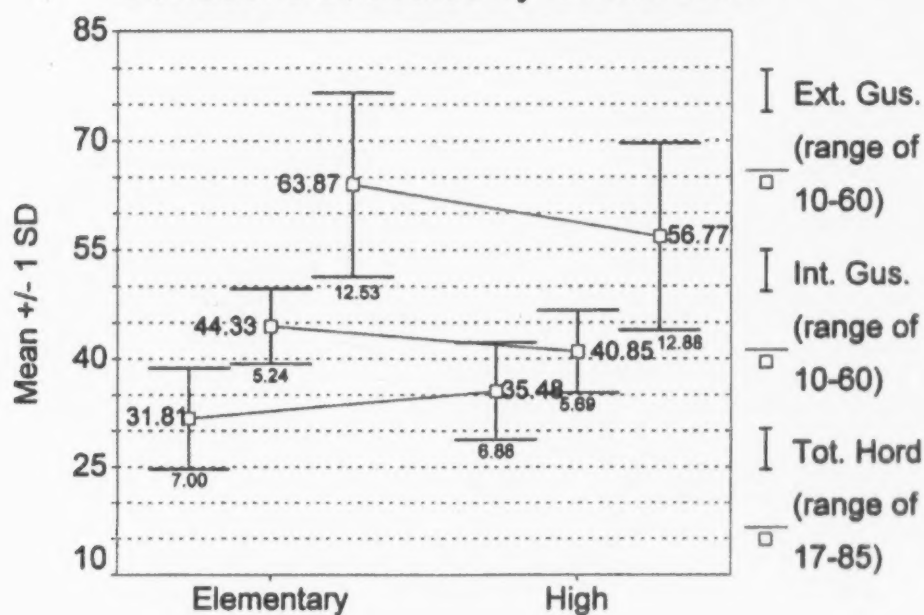


Figure 2: Cronbach Alpha Reliabilities by Scale for the Full Group

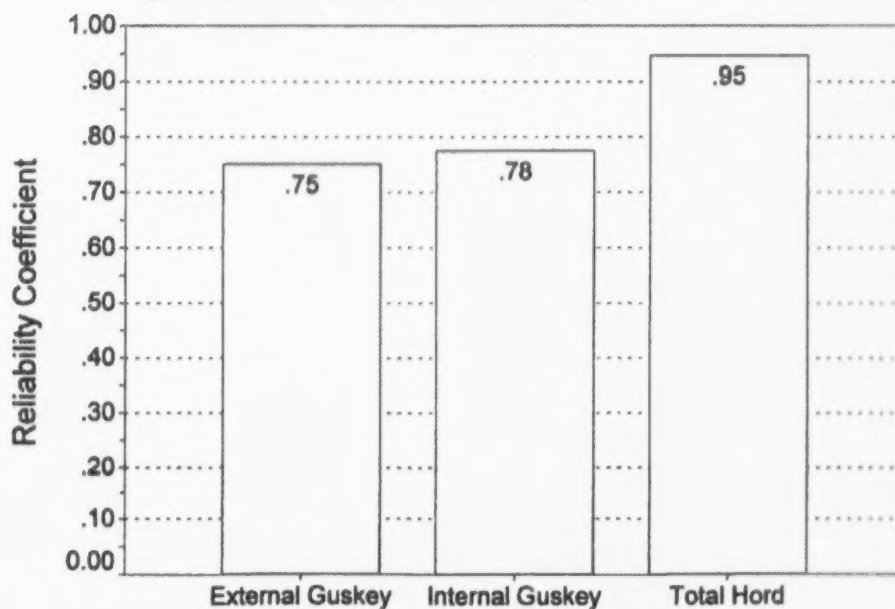


Figure 3: Scale Inter correlations
by Full Group and by Grade Level

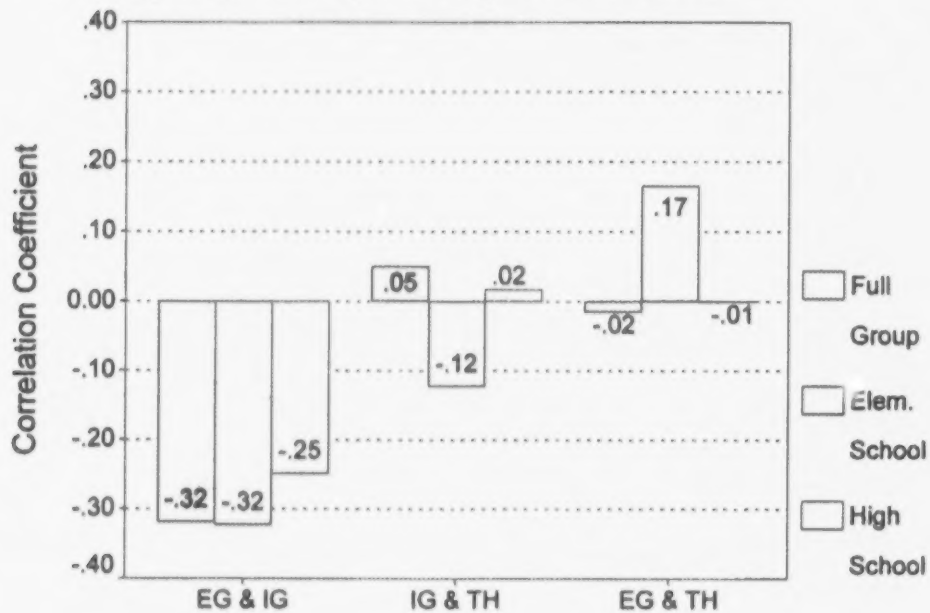


Figure 4: Correlations of Scales with Years of
Experience and Years at Current School

